

Post-doctoral/research engineer position: Development and characterization of carbon-coated Li-ion anode materials compatible with water-based assembly process

Context and goal

In the framework of a collaborative M-Era.net research project, the Department of Chemical Engineering recruits a post-doctoral researcher or a research engineer with strong experience in battery electrode manufacturing and characterization. The project will be conducted in direct collaboration with three companies in Europe (2 SMEs and 1 large company).

The general aim of the project is to **develop negative electrode materials that are compatible with water-based assembly process for lithium-ion batteries**. To that aim, commercial electrode materials provided by the industrial partners will be modified in surface in order to deposit a protective carbon layer, possibly doped with specific elements to improve their conductivity and interface properties. As a final target, the obtained materials will display (i) high specific capacity, (ii) excellent cycling behavior and (iii) full compatibility with water-based electrode processing. Additionally, carbon-based conductive additive provided by industrial partners will be surface-treated in the same way to improve their dispersibility in water-based slurries and thus their dispersion within the final electrode.

Role of the post-doctoral researcher/research engineer

The main role of the hired researcher will be to manufacture and fully characterize battery electrodes from materials (raw or surface-modified) received from the industrial partners, both in coin-cells and in pouch-cells. He/she will check for the compatibility of the electrode materials with the water-based processes previously developed at the NCE laboratory. He/she will participate to the further development of the battery assembly platform (equipment set up). He/she will be in charge of the M-Era.net project follow-up at ULiège (the NCE lab being project coordinator).

Information

- *General:* The researcher will be hired by ULiège (Belgium) in the framework of the M-Era.net project. The work will mainly take place in Liège (Department of Chemical Engineering – Nanomaterials, Catalysis, Electrochemistry), with regular visits to the partner companies in Belgium and Europe.
- *Profile:* PhD in Engineering/Sciences, or Engineer/Master in Sciences with a strong experience in electrochemistry, especially in Li-ion battery manufacturing and characterization.
- *Language:* fluent English (mandatory), a good level in French is an asset.
- *Duration:* 1 year
- *Start:* June-July 2023
- *Application:* please send a detailed CV and a motivation letter highlighting your skills and interests related to this specific project to Nathalie.Job@uliege.be
- *Application deadline:* April 8th 2023
- *Supervisor:* Prof. Nathalie Job - Department of Chemical Engineering – Nanomaterials, Catalysis, Electrochemistry.